

# C2C Climate, Weather, and Models with Confidence Rating

## Background Information

### 1. Personal Information:

Name:

Teacher:

### 2. School:

☐ William S. Cohen Middle School

☐ UTC

☐ Reeds Brook Middle School

☐ Hermon High School

☐ Hermon Middle School

☐ Old Town High School

☐ James F. Doughty Middle School

☐ Bangor High School

☐ Leonard Middle School

☐ Hampden Academy

Other (please specify)

### 3. Create your "identification code":

**Enter month and day of your birthday followed by first and last initials. For example Hannah Montana was born on November 23rd, so her identification code is 1123HM.**

## Climate and Weather

### 4. Which is always true about a day when there are strong winds?

- ☐ a. There are lots of clouds.
- ☐ b. The air temperature is low.
- ☐ c. It is raining.
- ☐ d. The air is moving.
- ☐ e. All of the above.

### 5. How sure were you on your answer for the previous question?

Very sure

Somewhat sure

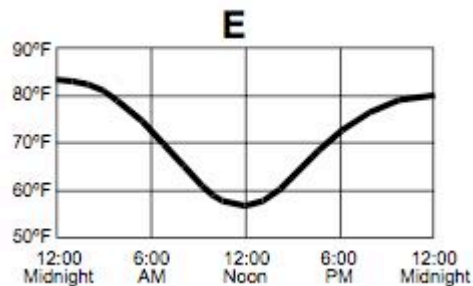
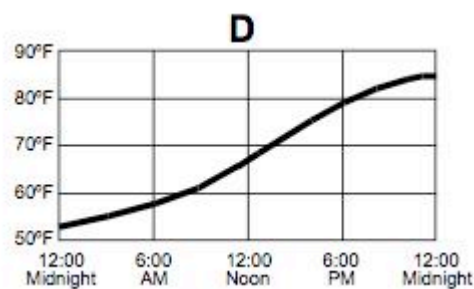
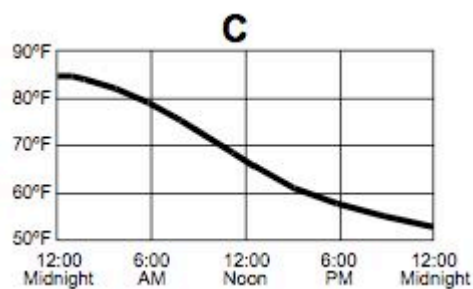
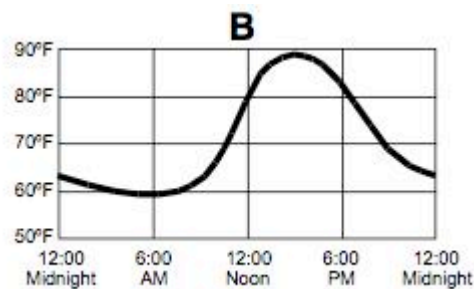
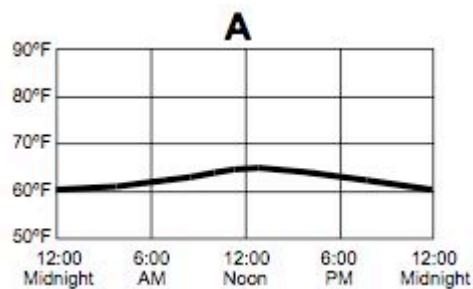
Only a little bit sure

I'm guessing

Choose one:

☐☐☐☐

The graphs below show the air temperature readings for five different days.



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**6. On which day was the sky most likely covered by clouds daytime and nighttime?**

☐ A

☐ B

☐ C

☐ D

☐ E

**7. How sure were you on your answer for the previous question?**

Very sure

Somewhat sure

Only a little bit sure

I'm guessing

Choose one:

☐

☐

☐

☐

**8. Which of the following statements would a scientist say was true?**

☐ a. Some mountains have formed due to many volcanic eruptions over a long time.

☐ b. Earth's climate went through changes before there were humans.

☐ c. Processes like landslides and avalanches are related.

☐ d. Both a and c.

☐ e. All three: a, b, and c.

**9. How sure were you on your answer for the previous question?**

Very sure

Somewhat sure

Only a little bit sure

I'm guessing

Choose one:

☐

☐

☐

☐

**10. Which human activity directly adds the most carbon dioxide to the atmosphere?**

☐ a. Using nitrogenous fertilizer to grow crops.

☐ b. Burning fossil fuels.

☐ c. Using air conditioning.

☐ d. Generating electricity from nuclear reactions.

☐ e. Increasing the amount of paved surfaces.

**11. How sure were you on your answer for the previous question?**

Very sure

Somewhat sure

Only a little bit sure

I'm guessing

Choose one:

☐

☐

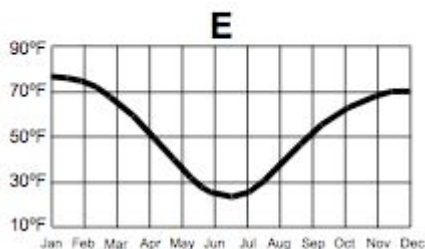
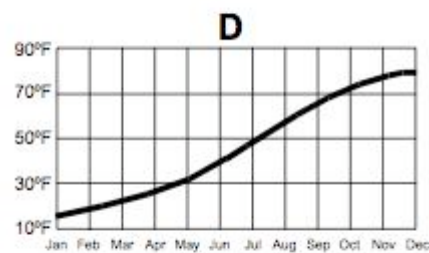
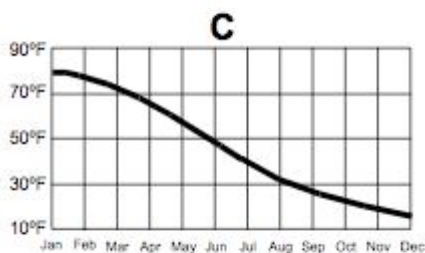
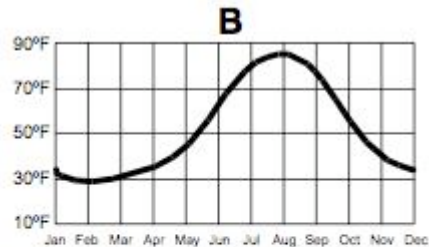
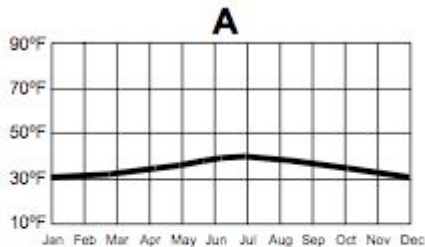
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# C2C Climate, Weather, and Models with Confidence Rating

## Climate and Weather

The graphs below show the highest air temperature reading every day for one year at five different locations.



**12. Which graph, most likely, is for a town in the middle of a large continent?**

- ☐ A      ☐ B      ☐ C      ☐ D      ☐ E

**13. How sure were you on your answer for the previous question?**

Very sure

Somewhat sure

Only a little bit sure

I'm guessing

Choose one:

- ☐      ☐      ☐      ☐

**14. Scientists think that compared to today, in the past Earth's climate has:**

- ☐ a. Always been the same.
- ☐ b. Cooled only during the Ice Age.
- ☐ c. Warmed and cooled many times.
- ☐ d. Warmed only since humans started burning fossil fuels.
- ☐ e. Been much less stormy.

## C2C Climate, Weather, and Models with Confidence Rating

### 15. How sure were you on your answer for the previous question?

	Very sure	Somewhat sure	Only a little bit sure	I'm guessing
Choose one:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

### 16. If there were no humans on Earth, which of the following would most likely happen?

- ☐ a. It would be less windy.
- ☐ b. There would be stronger ocean currents.
- ☐ c. There would be more storms.
- ☐ d. There would be less volcanic activity.
- ☐ e. Conditions would be much the same as now.

### 17. How sure were you on your answer for the previous question?

	Very sure	Somewhat sure	Only a little bit sure	I'm guessing
Choose one:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

### 18. Scientists say Maine was most recently covered by a glacier:

- ☐ a. 500 years ago.
- ☐ b. 1,000 years ago.
- ☐ c. 5,000 years ago.
- ☐ d. 20,000 years ago.
- ☐ e. 1 million years ago.

### 19. How sure were you on your answer for the previous question?

	Very sure	Somewhat sure	Only a little bit sure	I'm guessing
Choose one:	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

## Models and Climate

**20. Which of the following would make a reasonable model for rising air near the Earth's equator?**

- ☐ a. Cold air on top of a mountain
- ☐ b. Smoke from a candle
- ☐ c. A hot air balloon
- ☐ d. Both b and c are reasonable models
- ☐ e. All of the above are reasonable models

**21. How sure were you on your answer for the previous question?**

Choose one: ☐ Very sure ☐ Somewhat sure ☐ Only a little bit sure ☐ I'm guessing

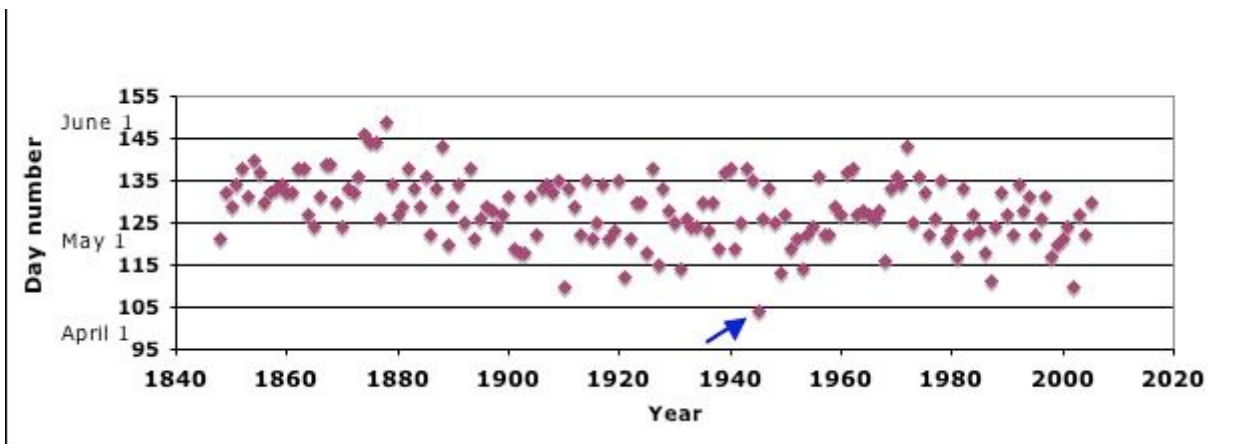
**22. Which of the following is the most similar to mantle convection?**

- ☐ a. Smoke rising above a fire on a calm day.
- ☐ b. Ocean water being stirred up by surface winds.
- ☐ c. Lava collecting into pools at the base of a volcano.
- ☐ d. Mud sinking to the bottom of a lake.
- ☐ e. Sand moving as dunes across the desert.

**23. How sure were you on your answer for the previous question?**

Choose one: ☐ Very sure ☐ Somewhat sure ☐ Only a little bit sure ☐ I'm guessing

### Ice-out dates for Moosehead Lake, Maine



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**24. This graph shows which day of the year the ice melted off of Moosehead Lake for each year since around 1850. Which of the following claims is best supported the graph?**

- ☐ a. There has been no apparent change in the timing of ice-out at Moosehead Lake since 1850.
- ☐ b. Ice out appears to be earlier now than in 1850, but it hasn't changed much since around 1920.
- ☐ c. Any change in the timing of ice-out can't be determined because the points are too scattered.
- ☐ d. The coldest year for Moosehead was in the 1940s (blue arrow).
- ☐ e. The graph does not support any of the claims above.

**25. How sure were you on your answer for the previous question?**

Very sure

Somewhat sure

Only a little bit sure

I'm guessing

Choose one:



## C2C Climate, Weather, and Models with Confidence Rating

### You're finished!

Thank you!

Acknowledgements:

Many of the questions on this survey were developed by the MOSART (Misconceptions-Oriented Standards-based Assessment Resources for Teachers) Team led by Dr. Phil Sadler, Harvard-Smithsonian Center for Astrophysics. See [http://www.cfa.harvard.edu/smgphp/mosart/about\\_mosart.html](http://www.cfa.harvard.edu/smgphp/mosart/about_mosart.html) for more information.